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FOREST RESEARCH NOTES

CALIFORNIA FOREST AND RANGE EXPERIMENT STATION

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PALATABILITIES OF FOOTHILL RANGE PLANTS FOR CATTLE

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The following palatability figures represent preliminary information on a class of vegetation in California which has received comparatively little study in the past but is now claiming the attention of many experimental and land planning agencies. This vegetation is commonly referred to as the "annual type" because the herbaceous ground cover is dominated to the extent of 95 to 99 percent by annual plants, both introduced and native.

The type covers about 25,000,000 acres in the State at elevations mainly below 2,500 feet and includes the major portion of the uncultivated valley and foothill lands in the San Joaquin and Sacramento Valleys, the southern portion of the north Coast Range, and practically all of the south Coast Range except where shrubs and trees are too dense to permit herbaceous growth.

In past years forage palatabilities were developed primarily by the Forest Service for application in surveys on national forests where the herbaceous plant cover is dominated by perennials, but the Cooperative Western Range Survey in 1937, the Agricultural Adjustment Administration in their range programs since 1936, and the current Flood Control Surveys in the State have created a demand for palatability figures for annual-type plants.

The following figures were developed in 1937 to facilitate the completion of the Western Range Survey in San Benito County. Since data were not available for that locality at the start of the survey it became necessary to assemble the best available figures from previous work on national-forest ranges bordering on the annual type, and to revise the figures during the San Benito survey to fit local conditions. These figures of course are subject to further revision.

Until more specific information becomes available from other surveys and from work at experimental centers such as the San Joaquin Experimental Range, which was established in the Sierra Nevada foothills in Madera County in 1935 for the purpose of studying range problems in the annual type, the following list is presented for its possible reference value to the growing number of agencies that are carrying out range and related work in the annual type.

GRASSES AND GRASS-LIKE PLANTS

Scientific name[1]	Symbol[2]	Percent palatability[3]
Agrostis (perennials)	AG	70
Aira danthonioides	AId	40
Aspris caryophyllea	ASc	10
Avena barbata	AVb	50
" fatua	AVf	60
Bromus arenarius	Ba	20
" carinatus	Bc	60
" hordeaceus (mollis)	Bh	60
" madritensis	Bmd	20
" marginatus	Bm	60
" racemosus	Brc	60
" rigidus	Brg	30
" rubens	Br	40
" sterilis	Bs	30
" trinii	Btr	40
Carex (large, moist ground)	C	40
" (small, " "	C	60
Dactylis glomerata	DCg	40
Danthonia	D	60
Distichlis spicata	DIs	50
Elymus (perennials)	E	50
" caput-medusae	Ecp	10
Festuca (annuals)	F	30
Gastridium ventricosum	GAv	10
Holcus halepensis	HOh	50
Hordeum (annuals)	H	30
Juncus (small, moist ground)	J	70
" (large, dry land)	J	30
Koeleria cristata	Kc	60
Lamarckia aurea	LAa	20
Lolium perenne	Lp	70
" multiflorum	Lm	70
Luzula campestris	LUc	30
Melica bulbosa	Mob	50
" imperfecta	Mi	10
" torreyana	Mt	10
Phalaris	PA	40
Poa scabrella	Psc	60
Polypogon monspeliensis	PYm	10
Sitanion hystrix	SIh	40
Stipa pulchra	Sp	60
" lepida	Slp	60

1/ Reference: A Manual of the Flowering Plants of California, by Willis Linn Jepson.

2/ Taken from an unpublished symbol list which includes all the plants in Jepson's Manual of the Flowering Plants of California. Prepared by A. L. Hormay in 1936.

3/ Rounded to nearest 10 percent and applicable most directly to San Benito County, California.

Scientific name	Symbol	Percent palatability
FORBS		
Achillea millefolium var. lanulosa	ACm	30
Achyrachaena mollis	ACCm	10
Agastache urticifolia	AGSu	20
Agoseris (annuals)	AG	10
Allium	ALU	10
Amsinckia douglasiana	AKd	10
" intermedia	AKi	10
Anaphalis margaritacea	ANAm	0
Anthemis cotula	ANHc	0
Arabis	ARA	20
Asclepias eriocarpa	ASLe	10
" mexicana	ASLm	10
Aster	AST	10
Astragalus	AS	10
Baeria debilis	BAEd	10
Brassica campestris	BRc	20
Brodiaea capitata	Bca	10
Capsella bursa-pastoris	CAPb	10
Carum gairdneri	CRMg	20
Castilleia	CS	10
Centaurea melitensis	CENm	0
" solstitialis	CENs	0
Centromadia pungens	CEDp	0
Cerastium arvense	CERa	10
Chenopodium album	CPa	0
Chlorogalum pomeridianum	CHLp	10
Cirsium	CI	20
Collinsia bicolor	COb	0
Composites (annual)		10
Convolvulus	CV	10
Cynoglossum grande	CGg	10
Daucus pusillus	DAp	10
Delphinium	D	10
Dodecatheon	DO	0
Echinocystis	EC	20
Epilobium	EP	10
Eremocarpus setigerus	ERMs	0
Eriogonum nudum	EGn	20
Erodium botrys	Eb	60
" cicutarium	Ec	80
" moschatum	Em	70
Erysimum asperum	ERSa	10
Eschscholtzia californica	ESc	0
Euphorbia	EH	0
Evax sparsiflora	EVs	0
Fragaria	FR	0
Galium	GM	0
Geranium	GE	10
Gilia sp.	GI	0
Gilia tricolor	GIt	0
Godetia amoena	Ga	0
Grindelia	GRI	10
Hemizonia	HM	10
Hypericum concinnum	HPc	0
" perforatum	HPp	0
Lagophylla	LG	0
Lathyrus	LA	20
Layia	LAY	10
Lepidium	LEP	10
Linanthus	LI	0
Lomatium	LOM	10
Lotus (annual)	LO	30
" (perennial bushy)	LO	15
Lupinus (annual)	L	15
" (tall)	L	10
" (woody)	L	20
Madia	MA	10
Malva	MV	10
Marrubium vulgare	MABv	0
Matricaria	MR	0
Medicago hispida	MDh	80
Melilotus	ME	20
Mentzelia	MZ	0
Micropus californicus	MPc	0
Microseris	MI	10
Mimulus	MM	0
Montia perfoliata	MTp	15
Navarretia	NV	0
Nemophila	N	0
Orthocarpus	OR	10
Pentstemon	PE	10
Phacelia	PH	10
Phlox	PHX	0
Plagiobothrys	PL	10
Plantago erecta	PNe	10
Platystemon californicus	PLAc	0
Polygonum	PG	0

Scientific name	Symbol	Percent palatability
FORBS (Continued)		
Polystichum	PQ	0
Pteris aquilina	PTa	0
Ranunculus californicus	RAc	10
Rumex	RU	10
Salsola kali	SALk	10
Salvia	S	10
Sanicula bipinnatifida	SANb	10
" menziesii	SANm	0
Senecio	SN	10
Sidalcea	SD	10
Silene californica	SIc	0
Sisyrinchium bellum	SRb	10
Sonchus	SOC	0
Stachys bullata	SSb	0
Suaeda moquini	SUm	0
Thysanocarpus	TY	10
Trichostema	TR	0
Trifolium (moist ground)	T	50
" (dry ground)	T	30
Uropappus linearifolius	URl	10
Urtica	UT	0
Verbena	VB	10
Vicia	VI	10
Viola	V	10
Wyethia angustifolia	Wa	20
Xanthium spinosum	XAs	0
Zygadenus	Z	0
SHRUBS AND TREES		
Adenostoma fasciculatum	ADf	10
Aesculus californica	AEc	25
Alnus rhombifolia	ALNr	0
Arctostaphylos	A	0
Artemisia californica	ARc	0
" vulgaris	ARv	10
Atriplex	AT	10
Baccharis pilularis	BCp	0
" viminea	BCv	0
Ceanothus	C	20
Chrysothamnus	CRY	10
Dendromecon rigida	DEr	0
Diplacus aurantiacus	DIa	0
Ephedra viridis	Ev	10
Eriodictyon californicum	ERc	0
Eriogonum fasciculatum	EGf	10
Eriophyllum	EY	0
Fraxinus	F	0
Garrya	GA	0
Holodiscus discolor	HOd	10
Juniperus californica	Jc	0
Lepidospartum squamatum	LPDs	0
Lonicera	LR	20
Lotus scoparius	LOsc	20
Nicotiana glauca	NIg	0
Photinia arbutifolia	PHTa	0
Platanus racemosa	PLTr	0
Populus	PP	20
Prunus demissa	PRd	0
" emarginata	PRe	20
" ilicifolia	PRi	10
Quercus agrifolia	Qa	20
" chrysolepis	Qc	10
" douglasii	Qdo	20
" dumosa	Qd	10
" kelloggii (californica)	Qk	20
" lobata	Ql	10
" wislizenii	Qw	20
Rhamnus californica	RHc	10
" crocea	RHcr	20
Rhododendron occidentale	RRo	0
Rhus diversiloba	Rd	40
Ribes (not thorned)	RI	20
" (thorned)	RI	0
Rosa californica	ROc	20
Rubus parviflorus	RBp	0
Salix	SL	20
Salvia	S	10
Sambucus glauca	SBg	20
Senecio douglasii	SNd	0
Solanum	SO	0
Symphoricarpos albus	SYa	20
Umbellularia californica	Uc	0
Vitis californica	VTc	0